FIG. 1

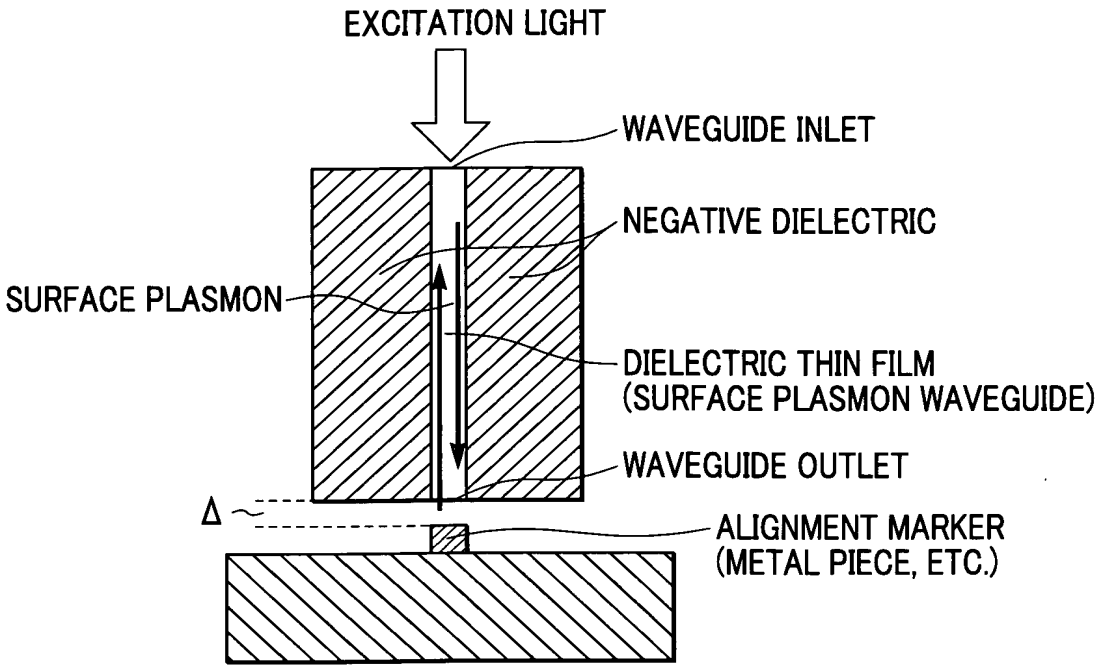

EXCITATION LIGHT
WAVEGUIDE INLET
NEGATIVE DIELECTRIC
SURFACE PLASMON
DIELECTRIC THIN FILM
(SURFACE PLASMON WAVEGUIDE)
WAVEGUIDE OUTLET
Δ
ALIGNMENT MARKER
(METAL PIECE, ETC.)

FIG. 2

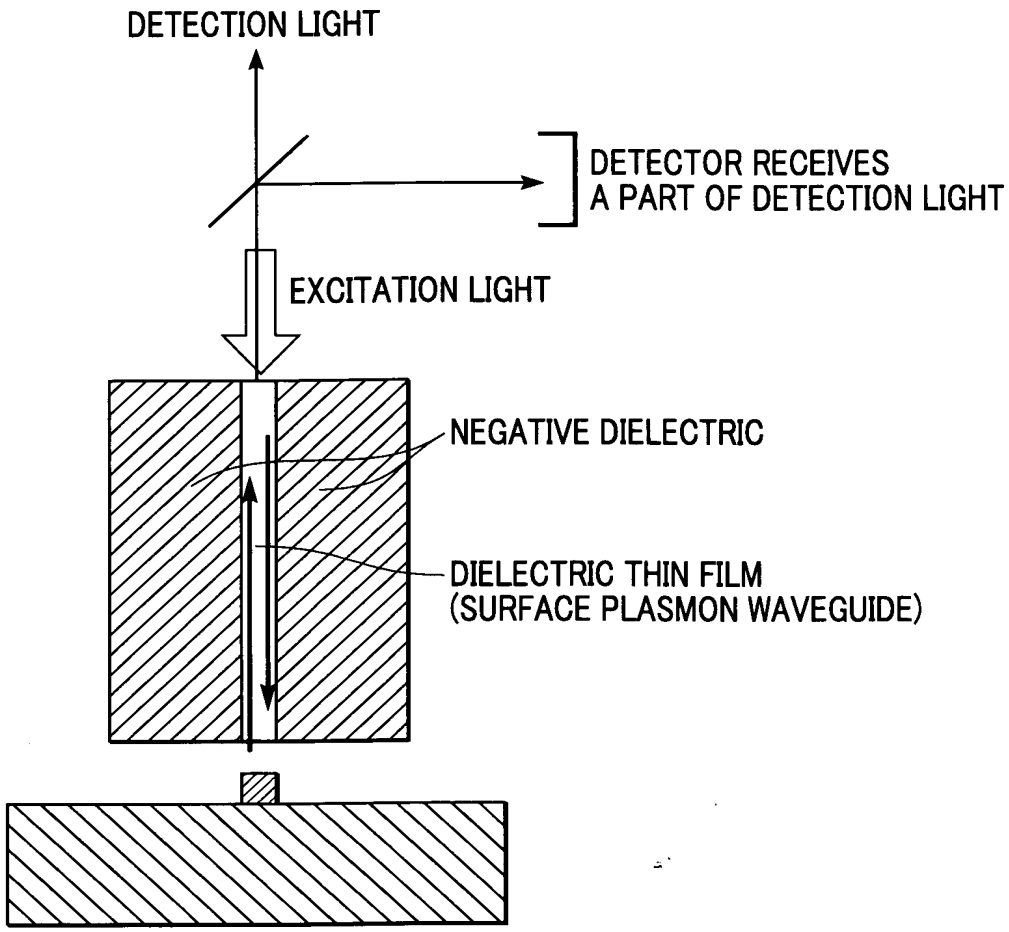

DETECTION LIGHT
DETECTOR RECEIVES
A PART OF DETECTION LIGHT
EXCITATION LIGHT
NEGATIVE DIELECTRIC
DIELECTRIC THIN FILM
(SURFACE PLASMON WAVEGUIDE)

FIG. 3

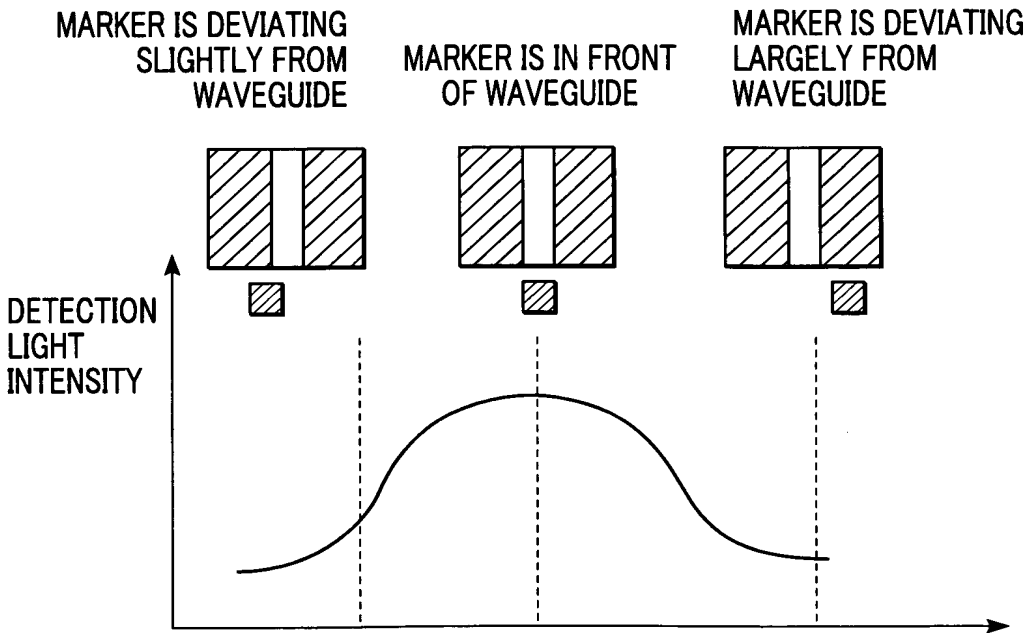

MARKER IS DEVIATING SLIGHTLY FROM WAVEGUIDE
MARKER IS IN FRONT OF WAVEGUIDE
MARKER IS DEVIATING LARGELY FROM WAVEGUIDE
DETECTION LIGHT INTENSITY

FIG. 4

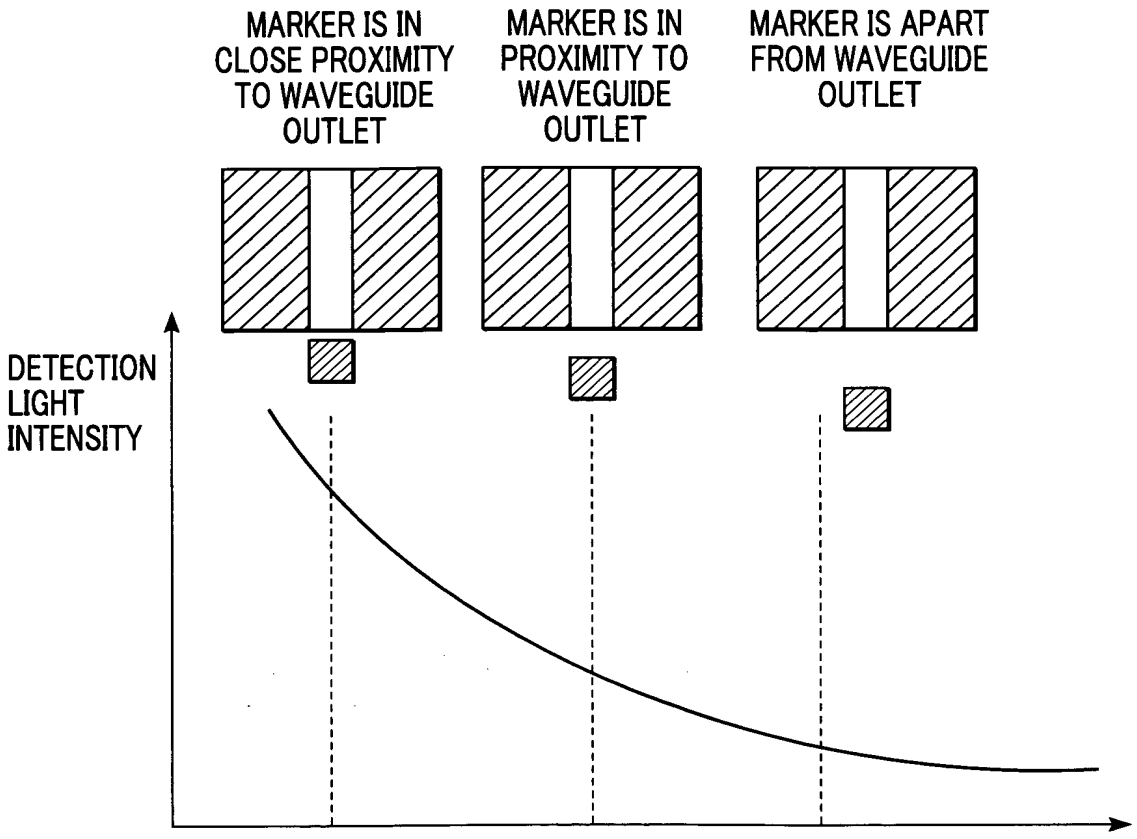
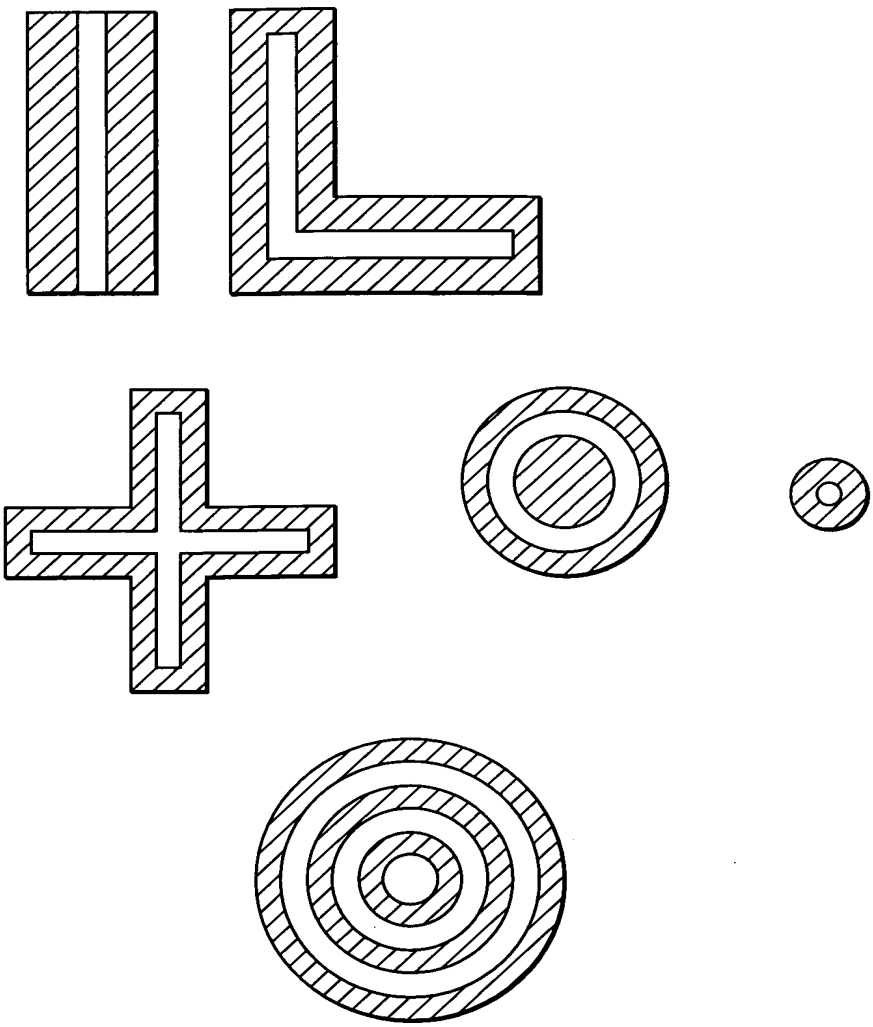
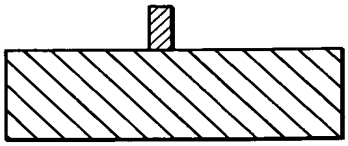

MARKER IS IN CLOSE PROXIMITY TO WAVEGUIDE OUTLET
MARKER IS IN PROXIMITY TO WAVEGUIDE OUTLET
MARKER IS APART FROM WAVEGUIDE OUTLET
DETECTION LIGHT INTENSITY

FIG. 5

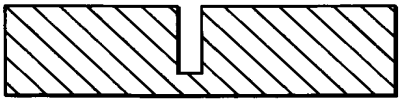


DIAGONALLY SHADED AREA : NEGATIVE DIELECTRIC
HOLLOW AREA : DIELECTRIC OR AIR LAYER

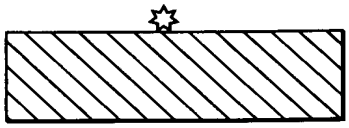
FIG. 6



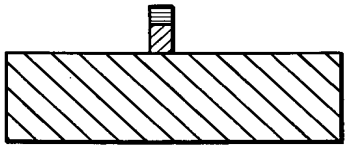
CONVEX STRUCTURE SUBSTRATE



CONCAVE STRUCTURE SUBSTRATE



SCATTERER ON SUBSTRATE



METAL ON CONVEX STRUCTURE

FIG. 7A

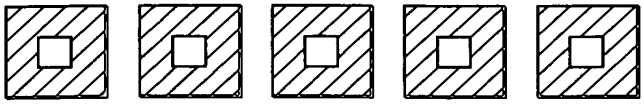


FIG. 7B

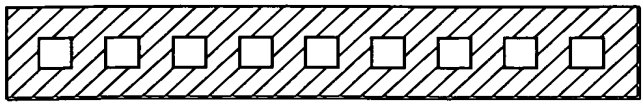
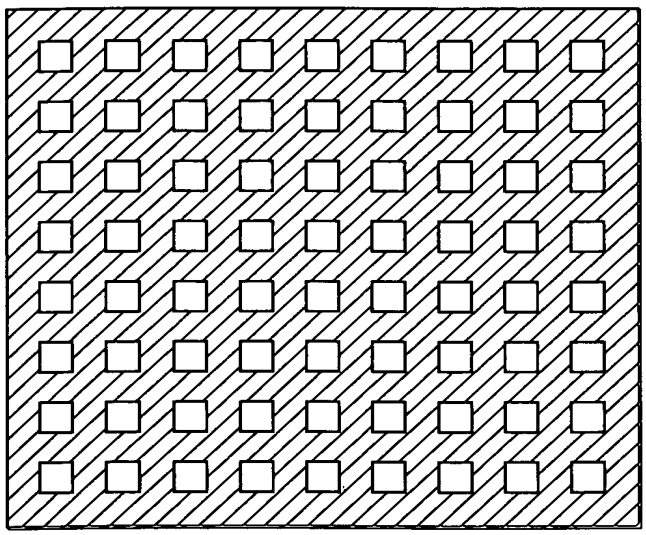


FIG. 7C



DIAGONALLY SHADED AREA : NEGATIVE DIELECTRIC
HOLLOW AREA : DIELECTRIC OR AIR LAYER

FIG. 8A

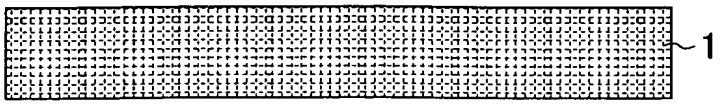


FIG. 8B

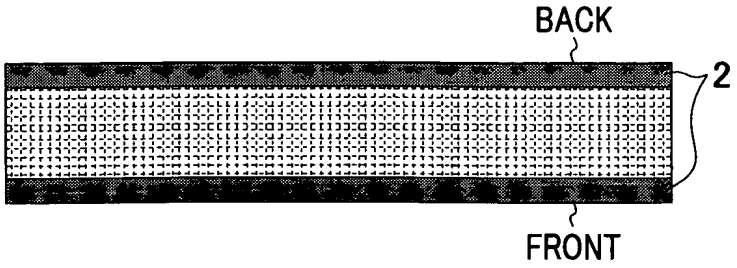


FIG. 8C

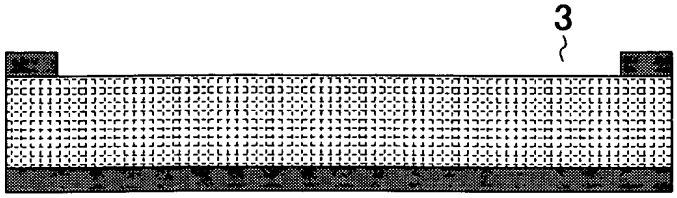


FIG. 8D

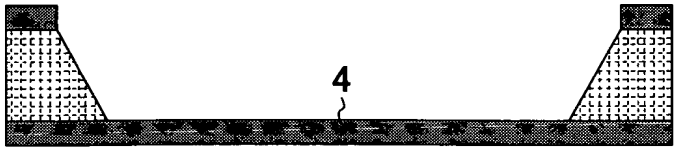


FIG. 8E

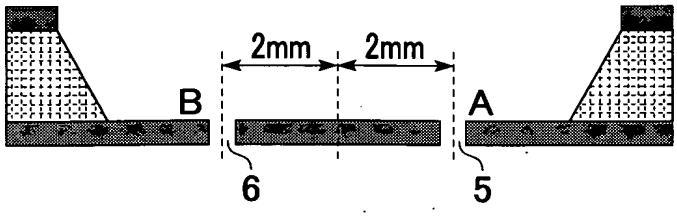


FIG. 8F

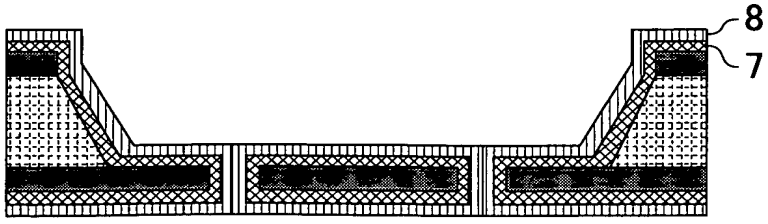


FIG. 9A

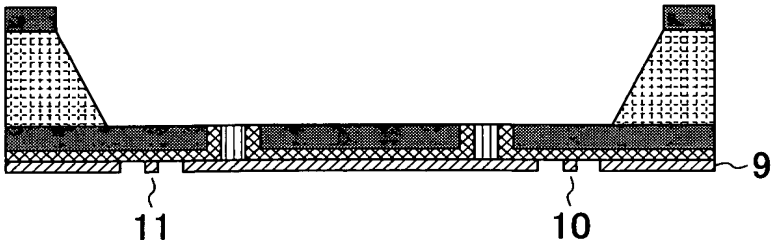


FIG. 9B

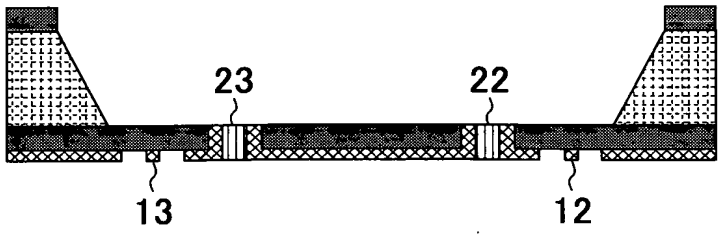


FIG. 10

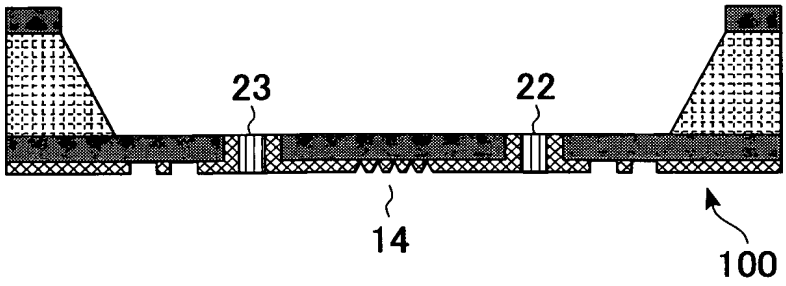


FIG. 11

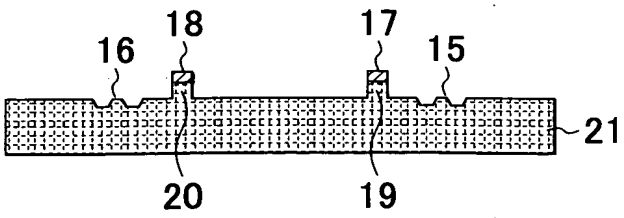


FIG. 12

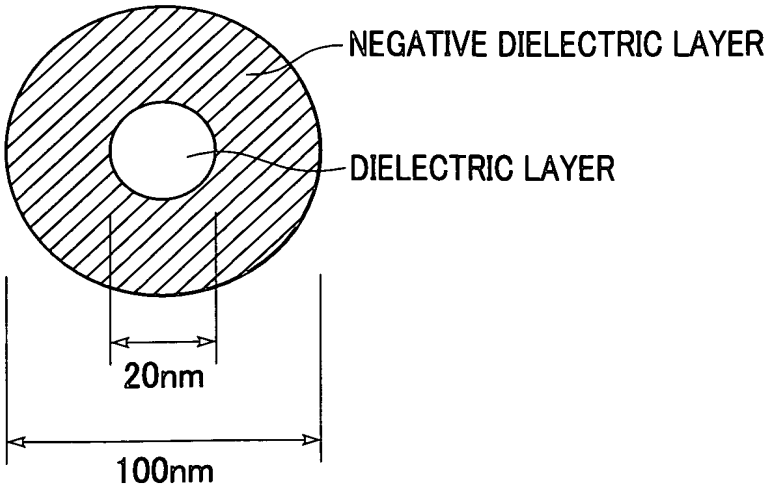
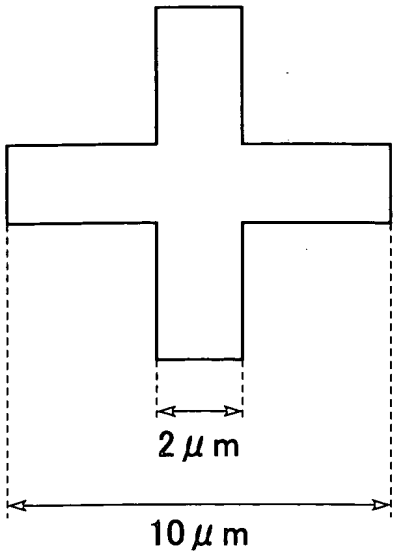

NEGATIVE DIELECTRIC LAYER
DIELECTRIC LAYER
20nm
100nm

FIG. 13


2 μm
10 μm

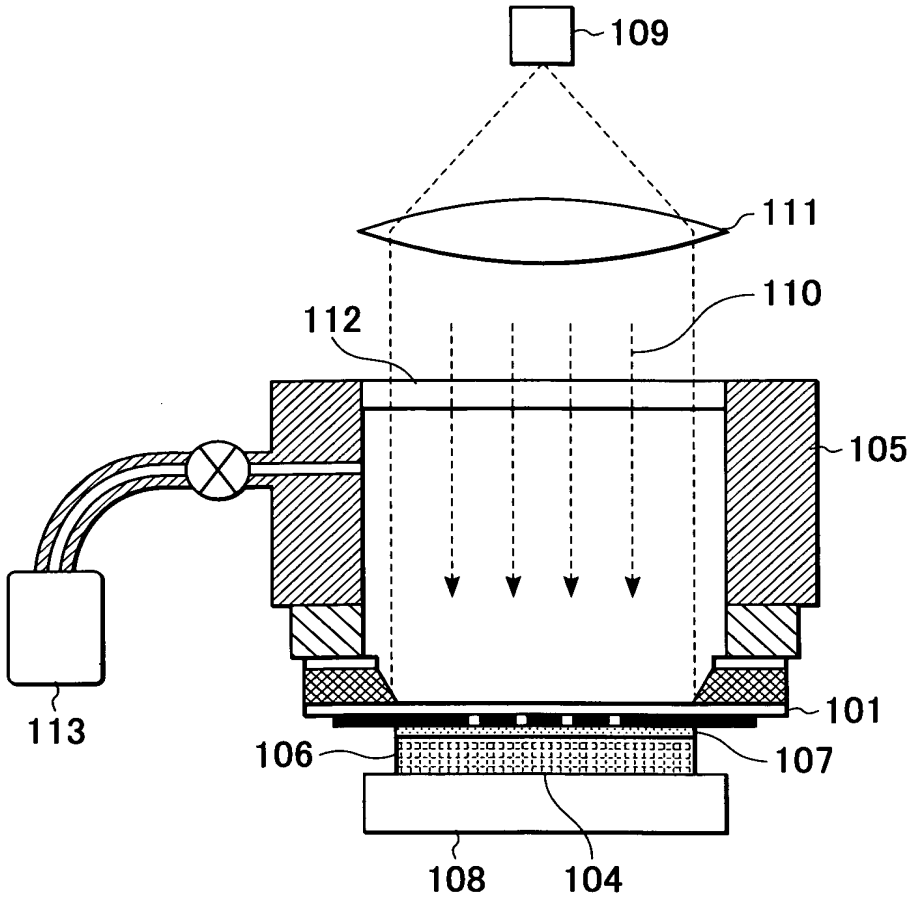



FIG. 14